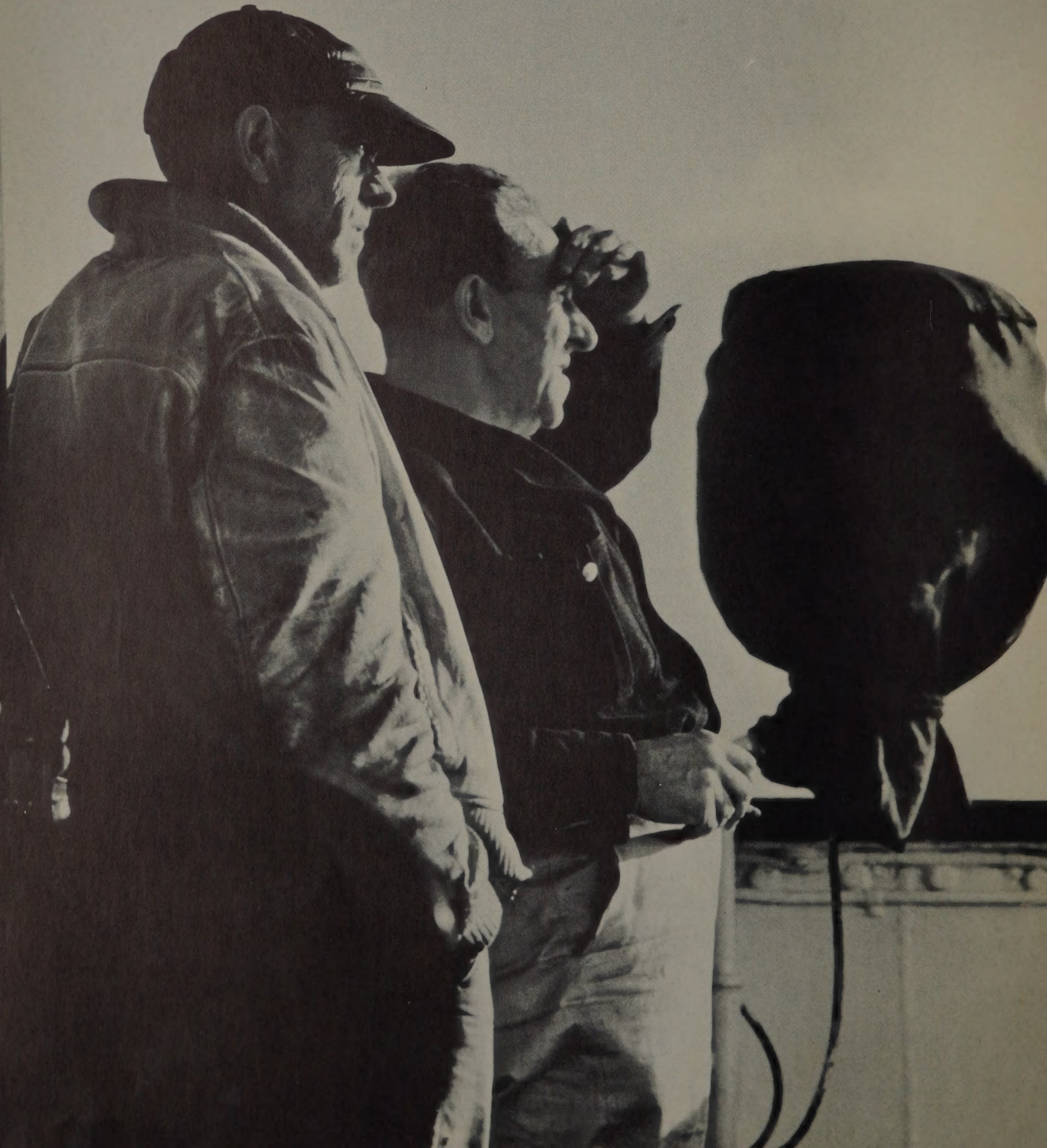
THE Lamp

WINTER 1964

In the search for oil, the North Sea is currently the scene of extensive geophysical study. Here the captain (right) *of a seismic survey ship and the exploration party chief watch the explosions being set off by their shooting boat* (story on page 2)



SURPLUS FOR SECURITY

During 1964 a dramatic new chapter was begun in the history of petroleum exploration—the search for oil and gas under the waters of the North Sea. With it, hopes of possible important discoveries were raised. But, taken together with the industry's billion-dollar-a-year oil search all over the free world, the venture may also bring a question to some minds. Could it be that instead of being in danger of running out of oil, as some people have feared, we are in danger of finding too much?

My answer is No—but I can understand why this question is sometimes asked. The free world oil industry, merely by "turning valves," could immediately raise its daily production and delivery of crude oil by some 5 million barrels, or over 20 per cent above the present level. With new transportation and storage facilities, this volume could be raised much higher. Moreover, the industry now possesses proved reserves roughly equal to the anticipated free world oil and gas consumption of the next twenty years. To these can be added large amounts which will doubtless be produced from existing fields by new techniques permitting more complete recovery of the oil that the rocks contain. In addition, there are huge known deposits, in North America and elsewhere, of tar sands and oil shales from which oil will begin to enter the market before too long. With all these known sources, why do we hunt so hard for more?

There are several reasons. To begin with, a very great effort is required simply to replace the reserves that are consumed every day. From one day to the next, this effort may yield more new reserves, or less, than are needed to replace the old—but we must aim at full replacement.

Futhermore, world energy demand isn't standing still. The industry's 5 million barrels a day of spare producing capacity is about equal to the growth in oil demand we expect in the next three or four years. In twenty years the demand will double. If producing capacity ever fell behind demand, tomorrow's new energy consumers would go to some other supplier—and oil producers would start losing markets.

Energy is so vital that any energy user must feel very secure in his supplies. He must feel confident that an emergency increase in demand, such as Europe experienced during the record cold winter of 1962-63, will be met. He must also know that if one source of supply is interrupted for political, technical, or any other reasons, his needs will be met from elsewhere. To plan with confidence, he must have these assurances for many years ahead.

This "security of supply" requirement is a powerful motivation for oil companies to continue, through active exploration, to augment the volume of their crude oil reserves—and to diversify their sources both geographically and politically.

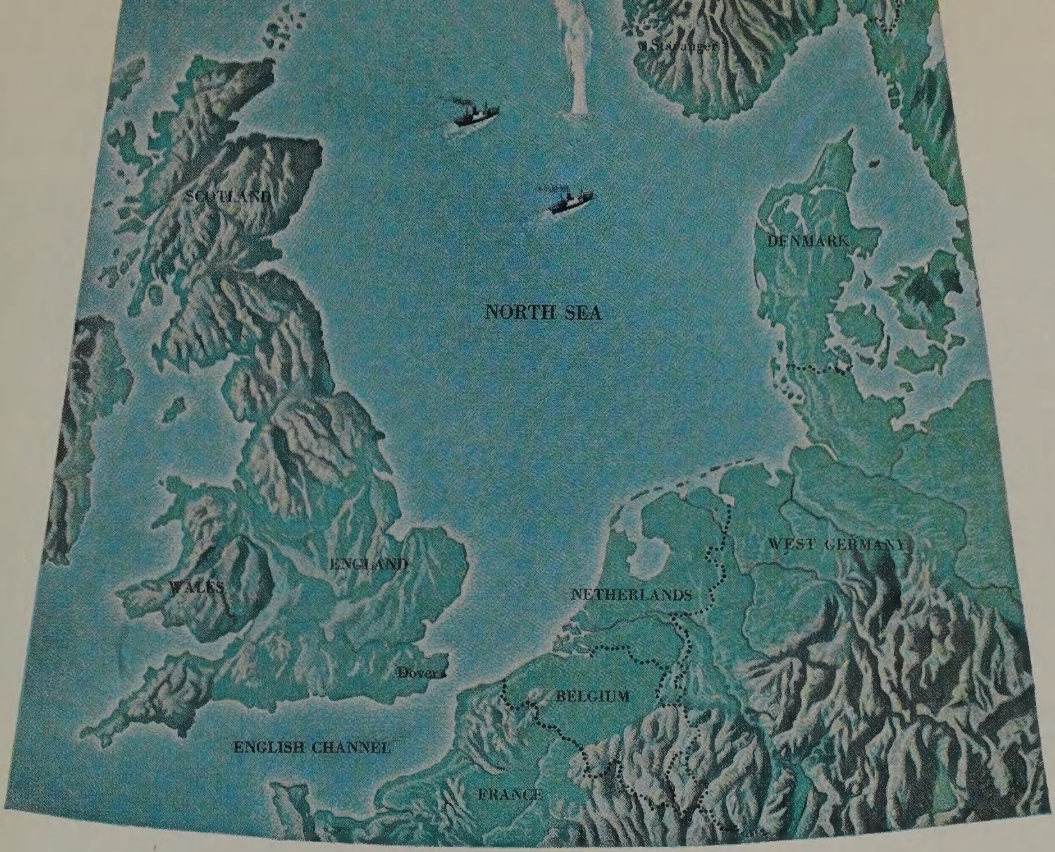
In addition, the very nature of the oil business leads in the direction of finding more oil on top of already adequate supplies. If a promising area for oil exploration is opened up for bids, every oil company knows that unless it gets in from the start, it will, for all practical purposes, be forever barred from acquiring any oil reserves in that area. This leads many companies to bid for concessions even though they may already have reserves that are quite satisfactory.

Underlying all these considerations is a simple fact of geology. Nature's bounty is unpredictable. When we start exploring a new area, we don't know whether we will find oil or gas, a lot or a little, in one year or twenty years—or never. The only way to beat such uncertainties is to spread our efforts over many promising areas. If we are reasonably successful, we may develop more oil than we need right away. But we can't afford to run the risk of being not successful enough.

In recent years this broad exploration strategy has kept the oil industry's producing capacity well ahead of demand. We should be glad this is so. There is nothing that will inject governments into our business quicker than an oil shortage, or even the threat of one.

A reasonable surplus of supply, then, is not a misfortune for our industry; it is a necessity and even a blessing. A surplus of supply is the only way in which the year-to-year uncertainty of exploration can be reconciled with the certainty of rising energy demand.

M. J. Rathbone
Chairman of the Board



ZERO HOUR IN THE NORTH SEA

To take the pictures on these four pages, photographer Arthur Seller spent several days in the North Sea aboard the seismic survey ship Anna. *Her crew of twenty-one seamen and technicians spent last summer exploring for Jersey Standard and Royal Dutch-Shell. At left, the* Anna's *"shooting boat," the* USA, *explodes a charge that will bounce sound waves from subsurface rock, providing clues to the location of oil and gas reservoirs below the sea bottom*

Since the time of the Vikings, the North Sea has been the scene of naval and commercial rivalry. Today, geophysical studies show this cold and stormy sea to be one of the most promising areas of the world in which to search for oil and gas. Throughout the coming winter, deep-water drilling rigs will be made ready for operations scheduled to begin in the spring of 1965. Six nations share offshore mineral rights in the North Sea (see map above)

With patience and precision, task forces of trained men have been probing the stormy waters of the North Sea. In converted bombers carrying magnetometers they have crisscrossed the area from Scotland to Norway and south to the Strait of Dover. From helicopters they have explored the shallows along the Dutch coast. And in a dozen seismic survey ships they have recorded the echoes of explosions bouncing up from rock strata far beneath the bottom of the sea.

Objective of this vast mobilization of manpower and equipment: oil and gas reserves for a growing Europe. It has been estimated that the demand for oil and gas energy in Europe will almost double over the next ten years. One study predicts that petroleum's share of the European energy market will be more than 50 per cent by 1971. Natural gas, just at the threshold of its real growth in Europe, should increase its share, presently around 2 per cent, even more dramatically.

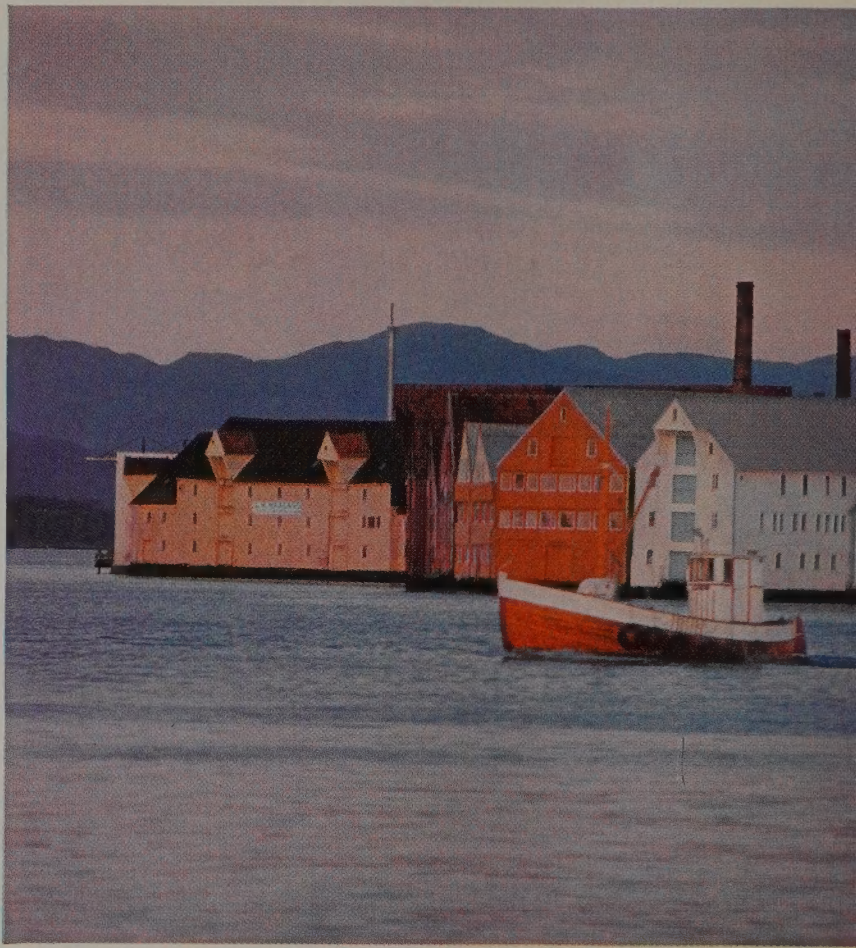
For centuries fishermen were the only people who cared what lay beneath the 220,000-square-mile surface of the North Sea. Then, in 1959, N.A.M.—a Dutch company owned jointly by Jersey Standard and Royal Dutch-Shell—discovered one of the world's largest gas fields in Groningen Province bordering the sea. The discovery aroused interest in the adjacent underwater area. Geophysicists then determined that most of the sea's subsurface is a sedimentary basin of the petroleum-bearing type. Today the North Sea is a focus of attention for the international oil industry with some fifty companies active in joint ventures in the area. Affiliates of Jersey Standard are engaged in exploration off the shores of the United Kingdom, West Germany, the Netherlands, and Norway. Esso Petroleum Company, Limited, and Shell U.K. have been granted North Sea drilling rights by the United Kingdom.

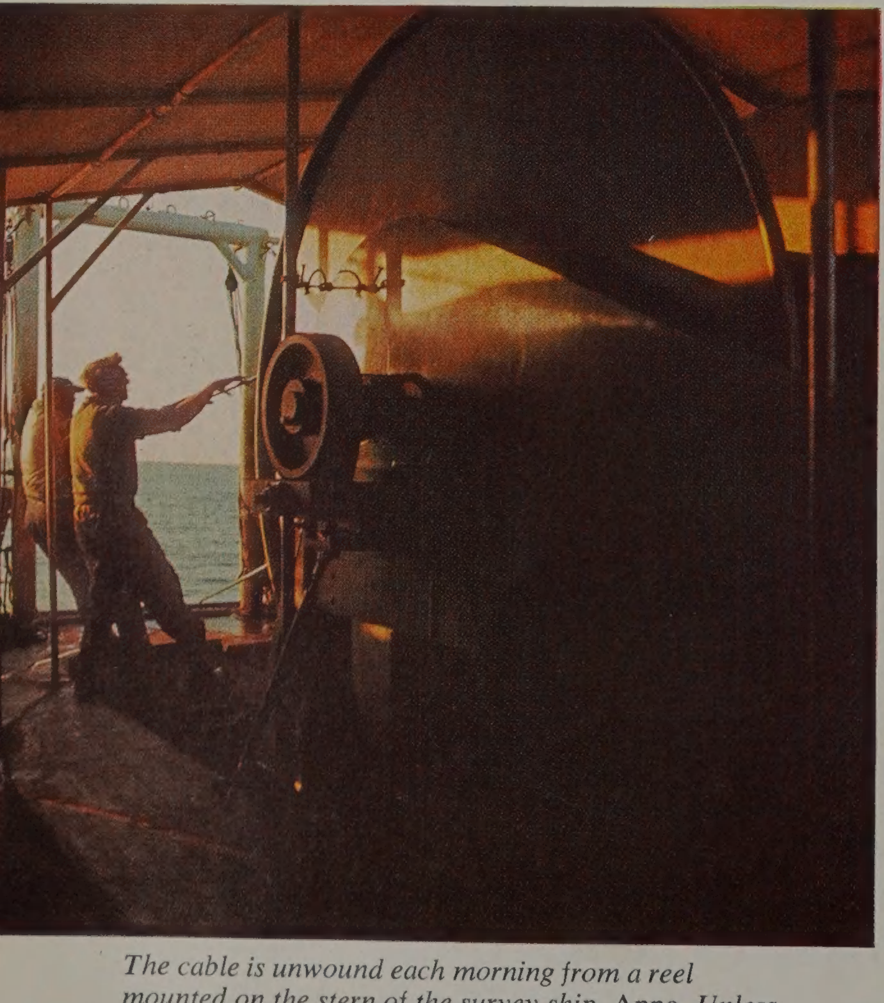
Thus the way is now cleared for deep-water drilling teams to begin work in the spring of 1965. Only they can prove that there is oil and gas beneath the bottom. It will not be an easy job. Although the water is relatively shallow, averaging 180 feet, the waves come fifty feet high during storms. Tides are always strong. Winter storms and fog bring periods when it is impossible to move men or supplies.

Last summer, two deep-water drilling platforms—mechanical monsters never before seen in this part of the world —were towed across the Atlantic from the Gulf of Mexico. They are now at work off West Germany and the Netherlands, and will help determine the effect on drilling operations of winter storms, fog, and ice. Meanwhile, in shipyards in the area more of the big platforms with heliports and long extendable legs are being readied for the spring assault—one of the world's biggest exploration efforts.

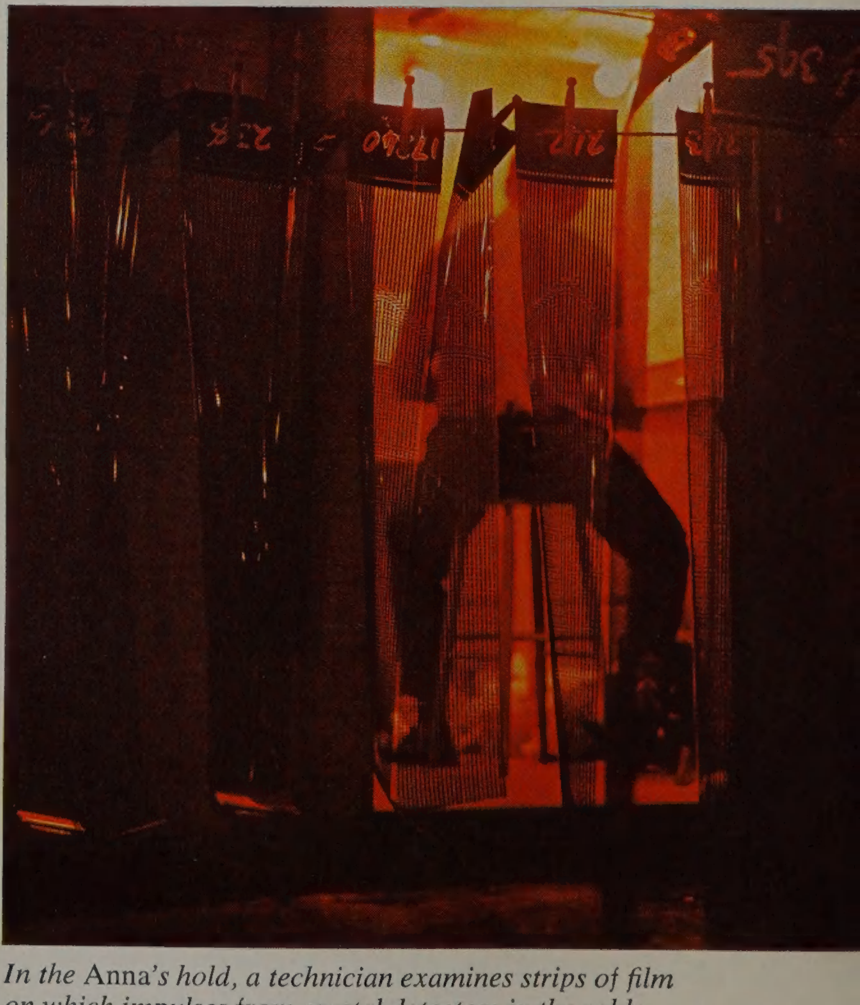
Should this deep-water drilling effort result in important discoveries, the heavily populated and industrialized nations of northern Europe will have a new source of low-cost energy. Oilmen consider the expensive gamble worth while, although they know that even in the North Sea there may be many "dry" holes.

The base for the Anna's *summer expeditions was Stavanger, Norway, one of a number of North Sea ports used by the seismic survey ships that are collecting data for the oil companies*





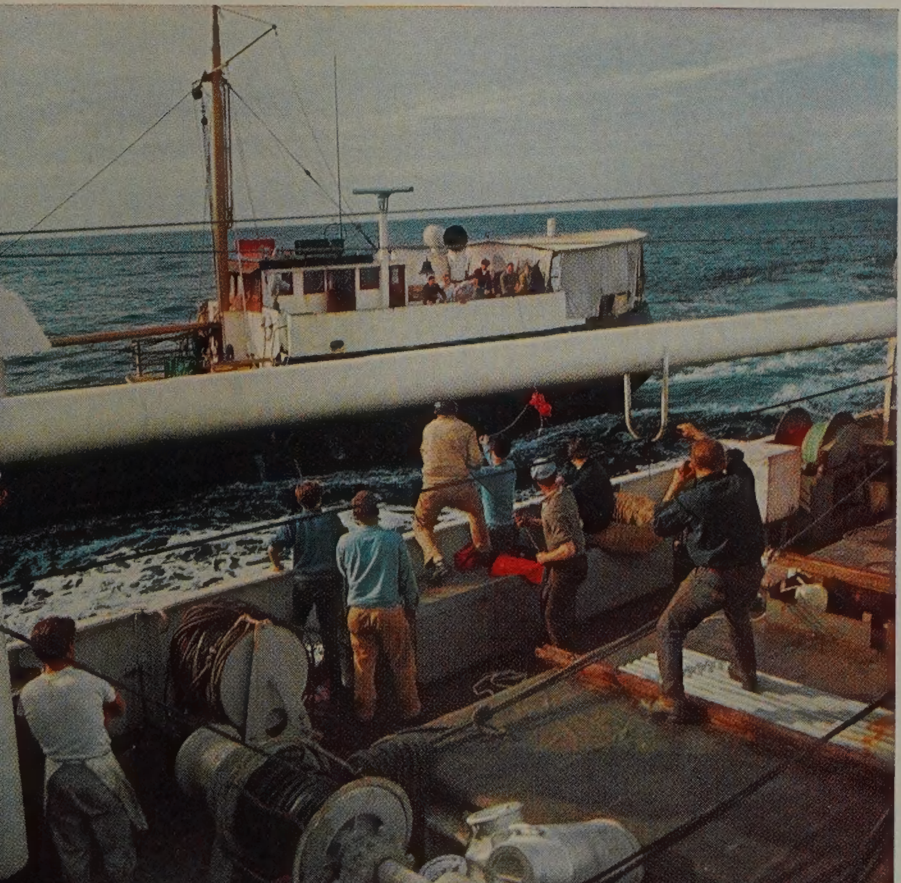
The cable is unwound each morning from a reel mounted on the stern of the survey ship, Anna. *Unless repairs are needed, it is not rewound until nightfall*



In the Anna's *hold, a technician examines strips of film on which impulses from crystal detectors in the cable are recorded for later analysis by geophysicists*

Signal balls are run aloft by a young crew member to warn shipping in heavily traveled North Sea trade routes that Anna *is letting out her mile-long seismometer cable*

Steaming a half mile behind the Anna, *the* USA *detonates a charge every three minutes, except when schools of fish are sighted on the ship's electronic "fish-finding" detectors*



The small shooting boat USA *runs short of rations for the crew's dinner and comes alongside the* Anna *to pick up emergency supplies, keeping clear in rough seas*

Another mission over, the Anna *lies alongside her berth at Stavanger. She will not remain in port long, for the survey season in the North Sea runs only from March to October*

MOTORWORLD IN MINIATURE

1

Leslie Smith of London, England, looks the way all toymakers ought to look. Of medium height and a bit round of face, he almost always wears a gentle smile. When he talks about his business, there is no doubt that making miniature motorcars for children is exactly what he should be doing for a living.

Over breakfast one day last spring he talked about his work. As he explained that Lesney Products & Company Ltd. (Smith is co-managing director) scales its toys from engineering drawings provided by the auto firms, he dug into his jacket pocket and produced a tiny 1911 Model T Ford touring car. Rolling the car across the table, Smith noted that this was one of his Models of Yesteryear. "These classics also are meant for the children, of course, but it's the grownups who have really taken to collecting them." The three-inch-long Tin Lizzie was complete in every detail, from tufted upholstery (made of soft plastic) to polished brass road lanterns and spoked wheels.

"Counting the old-timers, there are 115 models in the Matchbox line of cars, trucks, and farm vehicles. Most of them sell for forty-nine cents, which we think is a good price for children. Everything is for the children, especially the size. A child's hand is a third the size of yours, you know, so a toy that is only two or three inches long is just right for their little hands. Even the matchboxes the cars come in have turned out to be just right. The children use them for garages."

From the same pocket that held the Model T, Smith pulled out four more tiny vehicles—a 1960 Pontiac convertible, a 1923 Bugatti racer, a Tippax refuse truck, and a maroon London taxi with driver. He lined them up bumper to bumper across the tabletop.

"Laid end to end, the cars we've produced since we started to make toys in 1953 would reach from London to Rome. That, we figure, is an average of 80 million cars a year."

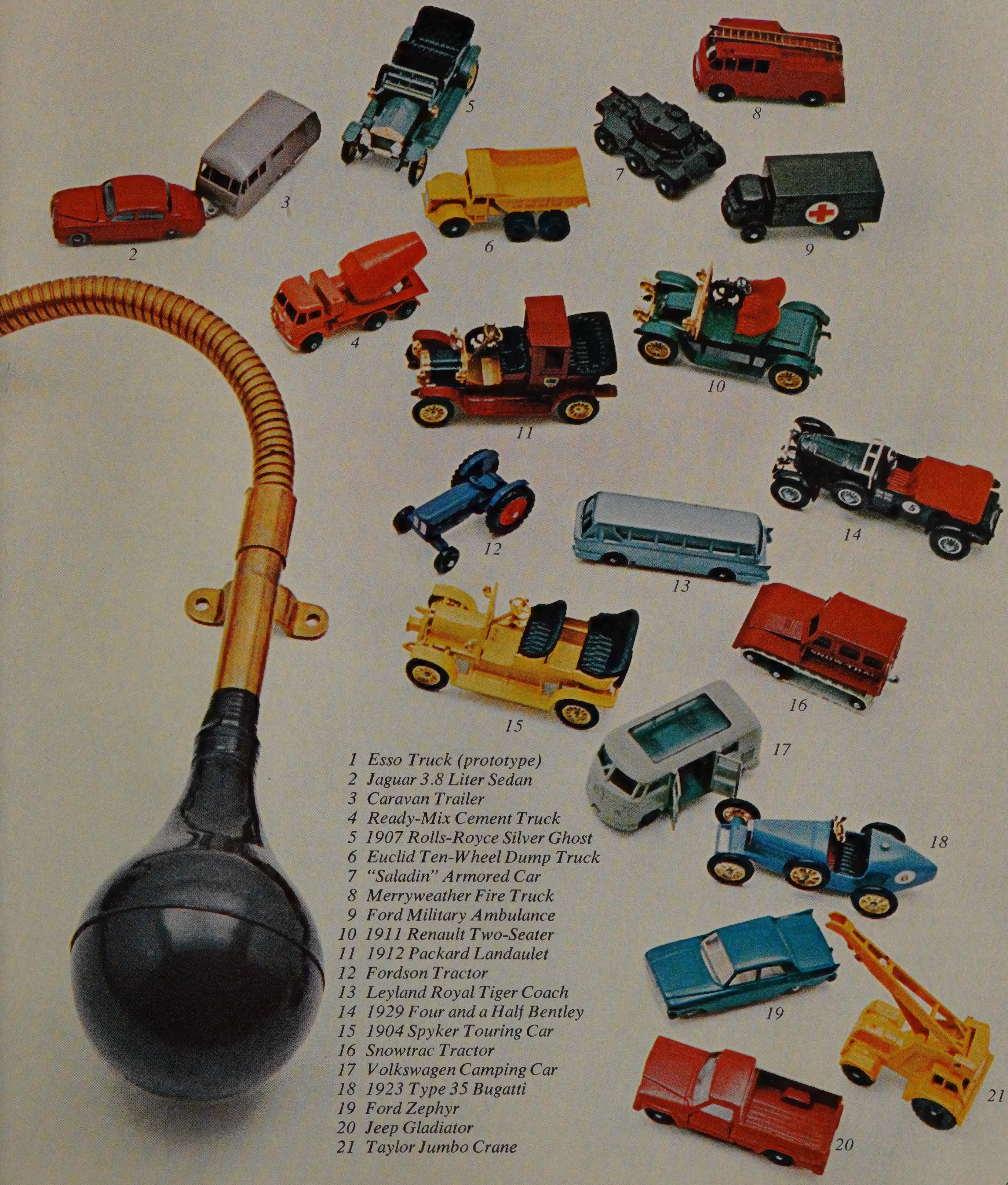
This amazing production record, we were assured, is the envy of Detroit. Our eyes fixed on the bright blue and brass Bugatti, we inquired where Matchbox cars are sold.

Smith said the little cars are sold in any place big enough to have a sales outlet and a few buyers, from Sarawak to Zanzibar, New York to New Zealand.

The Lesney company had a booth at the 1961 British Fair in Moscow and, as is the practice, hundreds of the little cars were on display in and out of their matchboxes. "The Russians went crazy," Smith remembered. "They swarmed over the booth with such enthusiasm that they all but wrecked the display. Little by little the cars disappeared, despite our efforts and those of the Russian police. Some months later we received an order from the Russian government for 80,000 cars."

It is in the West, of course, that the little cars do best. In the United States some 10 million of them are sold every year. Smith reports that the American market has grown so much during the last few years that Lesney's United States distributor, Fred Bronner of New York, is now a division of the company.

"Fred is Viennese. He came to the United States in 1945 after living in Trinidad during the war years. It wasn't easy for him when he first tried to sell the cars in America. Wholesalers said the public would never pay forty-nine cents for a toy so small. And they insisted that parents would resist the cars because of their association with matches. Now Fred has all



1 Esso Truck (prototype)
2 Jaguar 3.8 Liter Sedan
3 Caravan Trailer
4 Ready-Mix Cement Truck
5 1907 Rolls-Royce Silver Ghost
6 Euclid Ten-Wheel Dump Truck
7 "Saladin" Armored Car
8 Merryweather Fire Truck
9 Ford Military Ambulance
10 1911 Renault Two-Seater
11 1912 Packard Landaulet
12 Fordson Tractor
13 Leyland Royal Tiger Coach
14 1929 Four and a Half Bentley
15 1904 Spyker Touring Car
16 Snowtrac Tractor
17 Volkswagen Camping Car
18 1923 Type 35 Bugatti
19 Ford Zephyr
20 Jeep Gladiator
21 Taylor Jumbo Crane

he can do to keep up with his orders."

We asked Smith how he and his colleagues determine which automobiles to reproduce.

"Simple," he said, picking up the little London taxi. "We make models of whatever cars are most popular with the motoring public. We drop several models each year and replace them with new ones. Sort of planned obsolescence. This cab was first introduced to the line in 1961. Already it's a collector's item."

The toy that launched the company was not a motorcar at all. It was Queen Elizabeth's coronation coach, complete with its team of matched horses.

Smith and his partner, Jack Odell, met after the war. They pooled their meager resources and went into business producing die-castings for electrical goods manufacturers. Odell had developed a great talent as an engineer while in the army; and Smith felt he could handle sales of whatever they decided to produce.

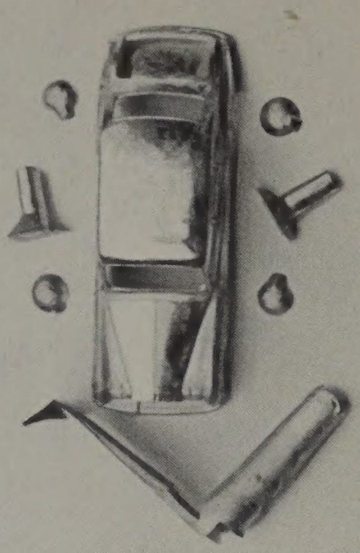
"Our first factory was a bombed-out pub called The Rifleman. The place had a roof, but no windows or doors. Children in the area used it as a playground."

Eventually the two Englishmen discovered they would have to diversify if they were to expand. Recollections of their own toy soldiers cast of lead (the little cars are made mostly of zinc alloy and painted with nontoxic paint) led them to believe toys might be the best bet for their skilled die-casters.

"We made our decision coincidently with the Queen's coronation and gambled with the idea of making a model of the coronation coach. We had no idea that the little toy—it was only a bit over three inches long including its eight-horse team—would sell as it did. But when more than a million were sold by the end of the year, we were in the toy business for good."

Today Lesney has a much larger factory than it had ten years ago, but, Smith assured us, there is still a kind of family atmosphere about the place. "Although my part in the business keeps me traveling from place to place, Jack Odell can't keep away from the shop. He runs about the factory in his white coat watching over things and talking with our people.

"Jack is quite finicky on detail. He's always looking for ways to put more of it into each new model. Just by using more



plastic we can put more detail into seats and tires and such without adding to the toy's price or affecting its durability."

We finally succumbed to the lure of the blue Bugatti and started rolling it back and forth on the table, being careful not to crash into our glass of breakfast juice.

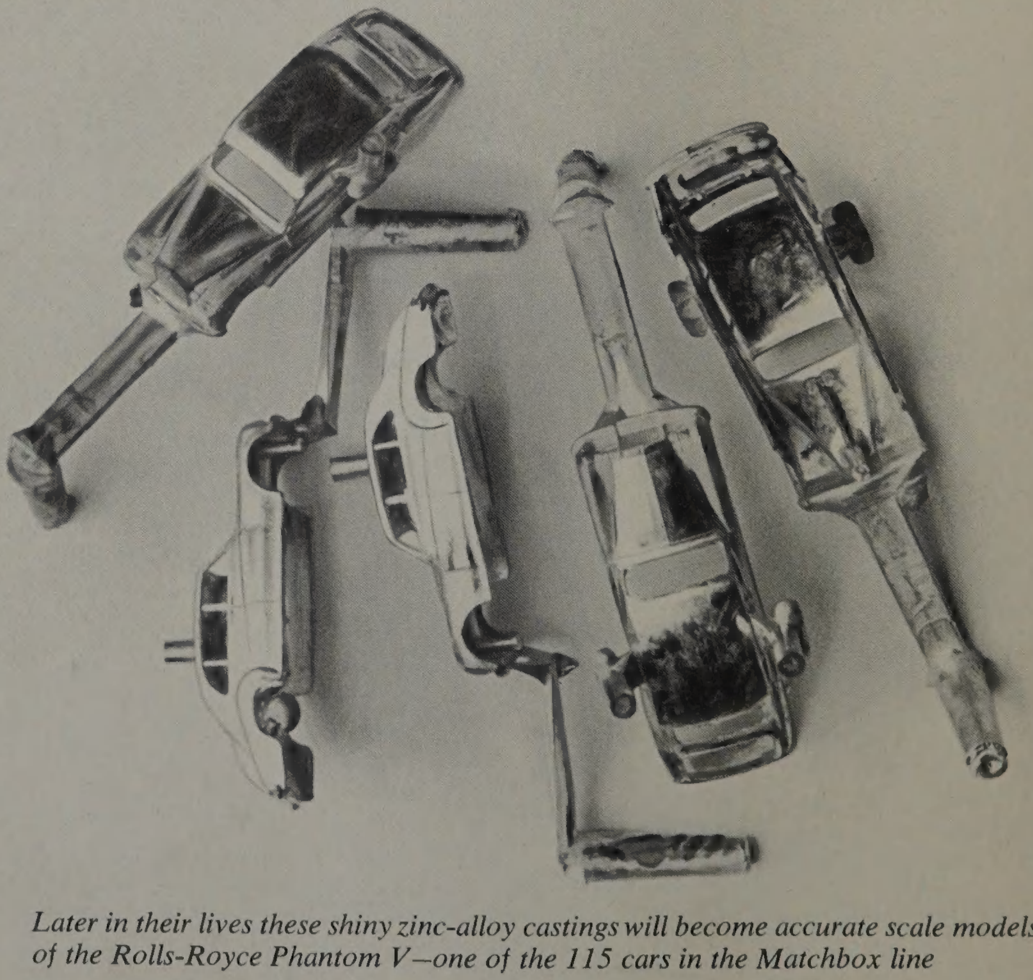
"What happens when you put, say, a gas cap in the wrong place?" we asked.

"We get letters," Smith said. "Our boys and girls watch everything we do very closely, and when we're wrong they tell us so. We once put a door handle in the wrong place on one of our trucks and didn't know about it until the letters started coming in."

Matchbox fans write all kinds of letters, Smith went on. American distributor Fred Bronner heard from a mother of eight who praised the little cars for keeping her children occupied. A small boy from Tonawanda, New York, suggested that the next new model should be a Plymouth station wagon with a cargo door and engine hood that opened. He sent a collection of primitive drawings and color pictures torn from magazines to support his case. Another lad told Bronner that his club thoroughly approved of the new line, listing the names of the club's officers and one member.

Perhaps the most telling comment Smith has heard about the little cars came from the harried father of three who said that since his children had started collecting them there wasn't a corner of the house that didn't serve as garage or road.

One evening, as the father stooped to help pick up after the day's play, his four-year-old turned to him and said: "You know, Daddy, when you get small I think I'll give you my police chief's car."



Later in their lives these shiny zinc-alloy castings will become accurate scale models of the Rolls-Royce Phantom V—one of the 115 cars in the Matchbox line

AS OTHERS SEE US

by Archie Robertson

The World Press Institute gives a small band of foreign journalists a chance to take a long look at Americans at home

America is not an easy country even for Americans to know, it is so vast, so varied, and so volatile. Understandably, its image in many parts of the world is often distorted. To improve their knowledge of the United States, and thus present a more accurate picture of it to the world, a small band of foreign journalists accept invitations each year to become Fellows of the World Press Institute.

The headquarters of the institute are at Macalester College, a moderate-sized institution of Scotch-Presbyterian background at St. Paul, Minnesota. For several months the journalists attend classes there, and at the University of Minnesota, in American history, politics, journalism, and other subjects. But their training is by no means wholly academic. They tour the country, visiting problem areas, interviewing both famous and obscure Americans, living with American families. In the end they are better able to explain to millions of foreign readers some of the American attitudes that are puzzling to the rest of the world.

How the WPI program can change outlooks was dramatically demonstrated just a few months after the fifteen 1963–64 Fellows had arrived in St. Paul. The foreign journalists, like everyone else, were profoundly shocked by the news of President Kennedy's assassination. Dieter Buhl, a West Berlin political writer, had accompanied Kennedy on his German tour. All of them found the events in Dallas completely inexplicable. "In the Middle East, such things happen only when there is a revolution," said Muhammed Tantawi of Cairo.

But above all, the event concerned them as working newsmen. The World Press Institute, which is aided by the *Reader's Digest* Foundation and a number of industrial corporations, including Jersey Standard, pays the newsmen's expenses during their stay in this country, but nothing more. All send home as many dispatches as they can. They would have felt disgraced for life if they could have reported nothing on the Kennedy tragedy. But Washington was more than 1,000 miles away, a strange capital which they presumed would be in an uproar and where they knew no one. The World Press Institute budget did not allow for this kind of emergency.

Yet that afternoon, even as their anxiety grew, the college placed its entire switchboard at the journalists' disposal for making overseas calls to their editors. The executive director of the WPI, thirty-year-old Harry Morgan, assistant to the president of Macalester, got busy on transportation. All commercial flights to Washington were completely booked, and the executive planes of the sponsoring companies were tied up. But another company, Minnesota Mining & Manufacturing, had a plane the journalists could use—if they could leave within three hours and release it on arrival at Washington. Hilton Hotels, a sponsoring company, placed ten double rooms in Washington at their disposal, without charge. By six o'clock they were airborne, along with typewriters, food and beverages, and a Macalester professor of political science as guide. By 11:30 that night they were at the White House, fully accredited. They turned out to be among the few newspapermen of any nationality waiting inside the gates at 4:30 the next morning when Mrs. Kennedy arrived with the body of her husband. That day, Senator Eugene McCarthy of Minnesota, Roscoe Drummond of the *New York Herald Tribune*, and William Stringer of the *Christian Science Monitor*, tired and strained as they were, gave the foreign journalists hours of reasoned analysis. *The New York Times*, the wire services, and the Voice of America all offered facilities for filing their stories.

For the first time, at the Kennedy funeral, many of these young newspapermen saw at close range the heads of their own governments. By Sunday afternoon the fifteen reporters had already sent fifty stories to their newspapers. Willy Brandt, West Berlin's mayor, gave his only press conference while in Washington to the foreign journalists. One young man, with tears in his eyes, showed his WPI colleagues a cablegram from his publisher: "You are doing exceptionally good work and we are proud of you." He said, "And to think I've never even met the man."

A sponsoring company arranged to fly the young men back to St. Paul by commercial plane. Before they departed, they issued a joint statement. "As foreign journalists in America we have been quick to criticize, and so it is that our praise must be equally prompt. Until the past few days we prided ourselves on the objectivity with which we approached this program. It will never be the same. Now we have felt and experienced the great American spirit, and we are grateful."

But the journalists did not lose their objectivity after all—and this is fortunate. For these high-spirited young men hold up a mirror in which we can see ourselves as others see us. The picture is not always flattering. It can be a refreshing experience for an American to go with them on one of their tours.

One day last May the fifteen journalists, who live in a modest white house on the Macalester campus, rose without noticeable gusto to answer an alarm at five a.m. "We are not this kind of animal!" a city-bred member complained. "This is the time when a good newspaperman goes to bed, not when he gets up."

The early awakening signaled the start of a two-day tour of the Minnesota farm belt. The fields were entrancingly green and slashed with rows of purple lilacs, there were coffee and doughnuts at every stop, and one farmer even thoughtfully provided throwaway plastic overshoes for touring his barnyard. Nevertheless, after several hundred miles of driving and half a dozen farms each day, the boys had seen enough pigs for a lifetime. "Back on the famous Minnesota Porkway," said the shameless Irishman as they started out once more.

The journalists tend to be alienated, rather than impressed, by the standardized, high-speed operations that typify American life. After inspecting the mechanized wonders of the world's largest turkey hatchery, a writer from the Middle East remarked, "Now I understand why all the turkey in this country tastes alike."

On the other hand, an African reporter's face lit up with unexpected sympathy when someone explained to him what the deft-fingered girl with the flashlight was doing to eggs for market. "The same with us!" he exclaimed. "In the market at home I always hold an egg to the light before buying it." It makes America a little more believable to discover that eggs must be candled here, too.

They were bored by agricultural statistics, but they warmed to the farmer's wife who explained that her son, by raising 4-H Club calves, had earned a large part of the cost of his college education. In the living room of a tenant farmer they did not fail to notice an entire wall lined with good books unrelated to agriculture. "That's only about a third of his books," the farmer's wife said with pride. It is these experiences, multiplied over and over in all parts of the country, that do most to modify the preconceived notions the journalists bring with them.

They are unanimous in their praise of two of our institutions—supermarkets and democracy. They see the imperfections in our democracy—but they also find these are not always what they are represented to be abroad. One WPI journalist wrote back to his home paper, "I'm appalled at the absurdities I considered typical of America and its people."

Each man puts in three months on the staff of an American daily. Nothing they write is censored, and no one ever asks them to pull their punches. "Barbecuing the steak is the only male prerogative that has escaped the American woman's greed," observed Richard Sunder, of France, in the Houston (Tex.) *Post*. Dennis Kennedy of Belfast described in the Newark (N.J.) *Evening News* his experiences as guest of a New Jersey commuter whose driving habits left something to be desired. His host, during the morning drive to work, while at the wheel consumed a large bowl of cereal and milk, which he shifted skillfully from hand to hand as necessary. Dennis offered to hold it for him, but after he spilled milk around a fast curve, his host took it back. They arrived, miraculously intact, and his American friend held up the empty bowl triumphantly. "See, didn't spill a drop."

And they give credit where credit is due. Ohran Duru of Turkey told in *The Rocky Mountain News* his astonishment at visiting Denver's City Hall, where he found all the doors open "either for journalists or for the people."

Before their year is out, each journalist has made a 15,000-mile swing around the United States. They camp out in national parks, sleep in ranch bunkhouses, interview the President and leading Cabinet members, lunch with Congressional leaders on Capitol Hill, meet the chiefs of the United Nations delegations of their various countries, attend seminars with American artists, writers, and opinion leaders. They are by no means restricted to group tours. Even while attending classes at Macalester each man takes a day off, weekly, to explore what interests him: penitentiaries, research centers, churches, schools—or twenty-four hours in a police squad car.

They are encouraged to drop in unannounced on average people. For this purpose, a WPI journalist on a tour has only to point to a house and say "Stop!" An Iowa farm family, under these circumstances, insisted that the whole group stay to supper, and spread an astonishing feast.

They all find the abundance of America amazing, but they are not shielded from its poverty. Each spends several free weeks in a particular area that interests him. Of the 1963–64 WPI Fellows, for example, Dennis Kennedy went to investigate unemployment in two problem cities, Detroit, Michigan, and Butte, Montana. Ian MacDonald of Glasgow wrote home a sympathetic account of the Southern Appalachians, where he found economic difficulties much like those of the Scottish Highlands. ("After all, you know, they're the same people.") Claudio Escribo, chief editorial writer for *La Nación* in Buenos Aires, went to Miami to study the problems of Cuban refugees. Arun Bhattarcharjoe from India visited Hull House in Chicago; he investigated the Chicago slums and the Boys Club programs there.

The journalists reassemble at Macalester to compare notes—and they learn a great deal from one another. Their sense of humor becomes international. At a rodeo where American cowboys were trying to calm an excited bull, the slight, frail journalist from Thailand suggested, "Perhaps the gentleman from Mexico..."

The World Press Institute had its origins in the nineteen fifties. Harry Morgan, while serving in the United States Air Force, was impressed by the many mistaken notions people abroad had about the United States. While on leave from the Air Force he began to sell shares, at a dollar apiece, in a crusade he called Ambassadors for Friendship, to make it possible for more foreigners to see the real America. American Motors Corporation supplied a small fleet of station wagons—and Jersey Standard contributed to a fund for expenses—for extended "grassroots trips" by foreign students in this country. These trips, Morgan saw, were successful in straightening out the opinionated. The next logical step would be to straighten out the opinion-makers, the foreign journalists who write the news. Macalester offered its campus as a base for the first year of the World Press Institute in 1961–62, and industrial firms supplied the necessary cash.

Candidates for fellowships each year are suggested by foreign offices of the *Reader's Digest* and by Jersey affiliates, among others. Suggestions are also made by cultural affairs officers at United States embassies. But otherwise governments, wisely, keep out of it. In years to come, as the *Christian Science Monitor* has predicted, this program may "touch the lives of millions across the world."

So far, each of the WPI Fellows, after returning home, has been promoted. Several have books completed or under preparation on their American experiences. (*America Is Different* is one.)

But nothing has touched Harry Morgan more than a report that came to him recently from a developing country in which, as in some other newly independent nations around the world, the opposition press had totally disappeared. In this particular nation Parliament, about to adjourn, rushed through a huge batch of bills before the public had a chance to learn about them. A WPI Fellow, who had been promoted to editor of his newspaper, had learned during his year in the United States that legislatures in this country, too, sometimes try this last-minute trick—and that newspapers expose them. And this, even though it led to his temporary house arrest, is what he did.

GATHERING OF THE GHOST SHIPS

by CAPTAIN ALAN VILLIERS

As if by design, the great ships were engulfed by a ghostly fog when they arrived in New York's lower harbor. More than once the legendary Flying Dutchman *came to mind as the ships lay at anchor in the Hudson River* (preceding page) *and Gravesend Bay* (facing page). *In the series of pictures above, one finds, first, sailors of the Danish full-rigged ship* Danmark *toiling aloft to unfurl a sail. Then, in a wild montage of masts, rigging, and sail* (center, left), *private sailboat and Coast Guard cutter jockey for position off the port hand of the German steel bark* Gorch Fock II. *Leading the procession into the Hudson, her sails painting a pattern of triangles against the leaden sky, is the United States Coast Guard's graceful bark* Eagle. *Finally, one sees the Portuguese bark* Sagres *moving full sail past the wall of steel and glass that is the lower Manhattan skyline*

New Yorkers must have rubbed their eyes last July when a fleet of large square-rigged ships showed up in their busy, steamship-filled port. *Sailing* ships? How come? What were they? Ghost ships left by chance in the nuclear age? What trade were they in?

The answer, of course, is that they were in no trade at all. They were school ships. Known as "Operation Sail," the square-rigger invasion brought twenty-six sailing ships of one sort and another sailing in. Though an amazing sight, they were only part of the big fleet of such ships that still survives. Almost every major maritime nation maintains at least one such ship.

The purpose of all these seagoing sailing ships is *ab initio* training for seamen, both naval and mercantile.

"Seamen are trained, not born," declares the United States Coast Guard, cheerfully allocating the money to keep the *Eagle* in operation year after year.

"The oceangoing large sailing ship offers the best possible indoctrination to the sea, no matter how much apparent difference automation or electronics may make," stated the West German Navy when ordering the bark *Gorch Fock II* six years ago. "What matters most–first, last, and all the time–is men."

"A voyage under sail breeds character, develops leadership, fosters resource and the power to make decisions," Dr. Kurt Hahn, the prominent educator, has stated. "Nothing can train a man of action like a sailing ship."

So Britain is organizing the building of a big three-masted topsail schooner to take boys from industry and from universities for a voyage to sea. Britain's Sail Training Association, run by an influential committee of hardheaded businessmen, has worldwide support for its idea that the sailing ship offers character training par excellence.

These sailing school ships all have power, of course. They have to fit into schedules and curricula based ashore, and adjust their sailing to the immense program of diverse subjects in the educational field today. Some of them carry 400 or 500 cadets and seamen. They are fitted with refrigeration, radio, and electronic navigational aids. Most of them cruise in summer seas, if possible. None now beats around Cape Horn.

Yet it is astonishing how recently the big, cargo-carrying, engineless sailing ship survived, quietly getting on with her share of the world's work. The last of them still sailed in 1950. They were three big four-masted barks under the flag of Finland, operated by shipowner Gustaf Erikson of Mariehamn in the Åland Islands. Up to 1939 he had twenty of them, all doing well.

Erikson had the foresight to see that there was still useful work for the big sailing tramp to do between the wars, if her economy could be geared down to accept the low freights offered at the time. He had the courage to buy such ships when others were discarding them. Even in his fleet of twenty, his capital investment was less than half a million dollars. Mostly he got them at scrap value, for that was then the only other market open to sellers. He manned them with boy crews—average age seventeen before the mast and abaft it. Many of them, requiring time in a Cape Horn ship to qualify for certificates as merchant service officers, paid Erikson a few hundred dollars for the privilege of working in the ships. He did not insure his fleet, for values were low and premiums high. He had good masters and officers who served him well. He could afford to carry insurance risks himself. And he had virtually no overhead, for his office was his wooden house by the side of Mariehamn's leafy Main Street, his staff one shore-based captain and one secretary, his transport a bicycle.

After all, he had only to "fix" his twenty ships for one cargo a year. Usually it was bagged grain from Australia, where his sailing ships could afford to lie at lonely anchorages close by Spencer Gulf wheatfields and take weeks to load cargoes lightered out by local ketches or brought down long wooden jetties by horse team.

There was a long tradition of using big sailing ships in the Australian trade, for the Cape Horn road was their great highway. The wild west winds down there drove them furiously around the world, always going eastward, with the winds.

I sailed as seaman in three of those Erikson ships myself. They were tough, but they were kept well and handled magnificently. They were tough because they were big ships—as big as the average square-rigger ever came, around 3,000 register tons.

Back in the early nineteen twenties, when Erikson was building up his fleet, there was no shortage of good boys to sail in them. The first of his ships I joined—a big four-master called the *Lawhill*—had a crew of nineteen, all told. Even with a captain aged about thirty and three mates in their twenties, the average age of the lot was the usual seventeen. I was seventeen myself then, and I was signed on as an able-bodied seaman. When I saw the handful of fresh-faced, tow-headed youth that was to handle that brutish-looking four-poster on a 30,000-mile sail around the world, I confess I was a bit doubtful about the prospects of surviving.

But I didn't know the Erikson shipowning principles then. That crew was splendid. They might be youthful, and they might—then—have had no experience of Cape Horn. But even the fifteen-year-olds had been sailing since they were eight in one of the toughest sea schools in the world—the cold, windy, danger-filled Baltic. They sailed half the year and went to school the other half.

But those big Cape Horners weren't storm-tossed all of the time. Every passage included lots of glorious trade-wind sailing, too, when the conditions were ideal. Day after day, week after week, the steady, balmy trades filled the great sails, and the ship moved onward upright and graceful, a thing of quiet and glorious beauty existing in a peaceful harmony now unknown. I have been at work when we sailed six weeks and 5,000 miles without handling a sail or touching the gear, except to sweat it up dawn and sunset. Flying fish broke from the roll of foam singing softly at the graceful curve of the long cutwater. The wake astern was a long, straight furrow that showed briefly the way we'd come, then vanished forever from the sea.

The fame of these last ships had spread, by the thirties, and two new types of people began to sail in them: college boys from both sides of the North Atlantic willing to sign as voyage cadets; and passengers who took potluck with the crew at a flat rate of ten shillings (about two and a half dollars then) a day. The passengers had to sign the ship's articles, too, for none was licensed to carry passengers as such. The "pay" was a quarter a month.

The Erikson ships, at first, could count on a few odd cargoes to help make ends meet. They carried stuff that steamships wouldn't take or couldn't spare the time to load, like guano on some rocky island off the coast of Peru, or awkward lengths of cheap sawn timber from Baltic or White Sea outports for Delagoa Bay. Sailing ships also used to get lots of coal cargoes to deliver to outlandish places to stockpile bunkers for coal-burning steamships. But oil ousted coal; guano was worked out; high import duties on Baltic boards in favor of local woods cut out the large cargoes, and motorships could handle the parcels.

There was a famous German line of sailing ships, the Flying "P" four-masters belonging to the late Herr Laeisz of Hamburg. He was one of the greatest of the Cape Horn shipowners. His ships included the mighty five-masters *Preussen* and *Potosi,* which old sea dogs still rate far ahead of the fragile clippers. Their life was built up on the Chilean nitrate trade. But in the blockade of the first World War, scientists figured how to produce nitrates by chemical process, and that trade went, too.

So in the end there was only Australian grain. When the harvest failed, there wasn't even that. Depression helped the sailing ships, because they could afford to accept freights ruinous to more expensive vessels. Charterers liked them, too, because they took a long time to deliver their cargoes. This was free storage on a grand scale—months of it—and while the cargo was making the four-month run from Australia, brokers and such could gamble with it on the exchange and take a chance on handsome winnings.

As for the owner, so long as his ships were in good order when he bought them and he kept them up, how could he go wrong? With one cargo a year, he didn't care how long it took to load. Working one small hatch at a time, those big ships could be loaded by a handful of men—sometimes by only one. Costs of discharge could be kept down, too, for the steel ships all had big donkey boilers and a winch or two, used only in port.

Observing these things and the good quality of officers and crews and having, moreover, good friends among the brokers and charterers, I helped form a small syndicate back in 1931 to buy a big four-master for ourselves. There were four of us—two Finns, a London shipchandler, and myself. We chose a big four-masted bark called the *Parma* which had begun life as an oil carrier out of Hoboken and Philadelphia in the Far East trade. Later she became one of the Laeisz Cape Horners. Loss of the nitrate trade, plus depression in general, put her on the market.

She was a massive, powerful ship, carrying 5,500 tons in one enormous hold. Such ships had no bulkheads except the one collision wall right for'ard. The *Parma*'s hold was said at the time to be the largest single hold in the world. She spread over 60,000 square feet of canvas from her high steel masts and yards. She was a carrier, a driver, a square-rigger built to stand up to Cape Horn gales voyage after voyage, to use them and defeat them, as a matter of course. Her price was around $10,000.

Our *Parma* was built for the oil trade and her name originally was *Arrow,* one of four sisters, each well over 3,000 tons, built in Scotland in 1902. She was owned by the British affiliate of Jersey Standard and she carried what used to be known as "case" oil from eastern seaboard ports of the United States to Australia and the Far East. It should really have been called "cased" oil, I suppose, for it was gasoline or kerosene carried in two standard-sized square tins, the pair enclosed in a pinewood box. Old-timers told me that weight and size were determined by the useful load a donkey could carry—one case slung on each side—over passes in the Andes when the oil trade was branching out to remote South American villages.

This oil was used mostly for cooking and for lamps. In Melbourne, where I was brought up, I did all my childhood studying by the light of kerosene lamps—one to a room—and a nice soft light it was. None of us boys ever needed spectacles or any other aids to vision. I remember the big sailing ships discharging the case oil in Melbourne. They were fine, strong ships, many of them belonging to or chartered by the oil companies. The square oil tins were commonplace aboard all sailing ships and were the standard laundry "basins." Cut square across and trimmed a little, they were fine.

By the time we bought the *Parma* ex-*Arrow,* there were no more charters available in the case-oil trade. So we put her in the grain trade, and sent her out in ballast from northwestern Europe, around Good Hope to some anchorage off an outport in Spencer Gulf, South Australia. We chose outports because they charged no harbor dues and they had no tugs: we worked the ship under sail, even to and from the odd jetty. Our crew were boys, more than half of them cadets and all of them intending to become officers. Of course, we had an essential nucleus of experienced seamen: the three mates, the sailmaker, bos'n, carpenter-donkeyman, cook-steward, and a handful of young A.B.'s who, even at the age of eighteen or so, had already been round the Horn three times.

This was the secret. So long as we could find a hard core of young men still in the full Cape Horn tradition, we were all right. It was a hard life, but obviously a man's life. Wet through, seasick but not dispirited, they stumbled about the decks for a day or two. They climbed painfully up the high masts while the big bark pitched and rolled and threw herself about with wild contortions. The wind roared with a noise like thunder, and the cold sea spume filled the hostile air.

But nobody quit. First stop was Australia—15,000 miles away. Long before we had sailed that far—it took usually ten to twelve weeks—these lads had become fine young seamen. We sailed our *Parma* three years in that trade. I do not remember any quitters. Far from it! Soon there was competition for a place aboard, and young fellows—from Yale and Harvard and Princeton, and prep schools, too—came down to Australia or across to the Baltic to join. They all did well.

Somehow the sailing ship has always brought out the best in the men who served her. It was the sailing ship and her men that opened up all the trade routes of the world, made all the oceanic discoveries, found all the continents and all the islands, and effectively did the seafaring work of the world for thousands of years.

Because of these great traditions, her challenge and her usefulness, the square-rigger still survives, though she carries cargoes no more. As a training ship and a character-former, she remains unrivaled. Good seamen are still trained, not born.

Telephoto lens accentuates relative size as a tiny schooner crosses bow of tall ship

THE STORY OF OPERATION SAIL

by **Melvin Conant**

Four years ago, Nils Hansell of International Business Machines Corporation dreamed of reviving, if only for a few hours, the golden age of sail. The dream became Operation Sail, an event that brought to New York Harbor in mid-July possibly the greatest gathering of sailing ships to be seen in any port in modern times. Some were privately owned; some were owned by shipping companies; some belonged to the merchant marine; some were naval vessels. Among them were eleven tall square-riggers which now serve as merchant marine and naval training ships. Twelve nations participated in the program.

When the great square-rigged sailing ships first arrived in New York's Gravesend Bay, a heavy fog and rain engulfed them. The fog hung on throughout the day and night and into the next day, July 14. Officials feared that it would interfere with the main event of the week-long program, the parade of ships in stately procession up New York Harbor past the reviewing ships and into the Hudson River. But minutes before the sail-past was to begin, the fog burned off in the midday sun. *The New York Times* reported: "Led by the host vessel, the Coast Guard Academy's bark *Eagle*, the windjammers were under power as they approached the reviewing ships. One by one, as they passed the aircraft carrier *Randolph*, skippers sent cadet crewmen scrambling aloft to unfurl the acres of canvas. Other seamen on deck braced the yards in hard on the port tack as the great square sails, soggy from two days' rain, billowed gently in a light breeze."

On the bridge of the carrier, Captain Alan Villiers described for the assembled dignitaries each vessel as she passed. There were sailing ships from Argentina, Canada, Chile, Denmark, West Germany, Great Britain, Indonesia, Italy, Norway, Portugal, Spain, and the United States.

Operation Sail was made possible by a vast amount of planning, coordination, and hard work on the part of a group of Navy officers, yachtsmen, shipping executives, mariners, and others interested in the sea.

Elaborate sailing schedules and directions were prepared in an encyclopedic data handbook, some three inches thick, detailing every move from the moment the ships approached the East Coast until their departure from New York. Special charts had to be prepared; and all had to be distributed to each ship well in advance. Eight languages were involved.

The Office of the Captain of the Port of New York had to be consulted on most details. Sightseeing vessels and private yachts—and there were hundreds of them in the harbor—had to be controlled; anchorage areas had to be reserved, docks secured; and land transportation provided for 1,500 cadets.

A high point in the celebration was the formal ball arranged for the crews of all the ships. Held both on Pier 40 of the Holland-American Line and at the Seamen's Church Institute, it was possibly the largest ball ever held in New York.

Along with others instrumental in organizing the entire program, Jersey employees sharing a deep interest in the sea were actively involved.

OIL AT SEA

The international oil trade, which began in 1861 with the loading of the first transatlantic oil cargo aboard a small sailing vessel in Philadelphia, undoubtedly prolonged the great age of sail. In those days sail was believed safer for petroleum cargoes than steam power. So for more than twenty years oil went to sea under sail. A fast clipper could sail from New York to Bombay in 100 days with 150,000 cases of kerosene.

The fear of shipping petroleum by powered vessels still persisted in 1884, when a farsighted German merchant, Heinrich Riedemann, decided to build a steam tanker. Mr. Riedemann, whose oil marketing company was the predecessor of Jersey's present German affiliate, is said to have found only one shipbuilder in England who would consider the idea. The *Glückauf* (or *Good Luck*) carried her first cargo in 1886. Of only 3,020 tons deadweight, and 300 feet long, she looked like any other small cargo ship of her time, having three masts for sails to help out her engine. But she was the forerunner of a whole new breed of ships. She had electric lights, special arrangements to allow for the expansion and contraction of her compartmented liquid cargo, and her pumps could discharge a shipment in twelve hours (against the days necessary for unloading barrels or cases). The *Glückauf* did not blow up (although it is sad to report that in a few years she ran aground and was lost).

Despite her personal bad luck, the *Glückauf* started something. Today more than 3,000 deepwater tankers, representing 40 per cent of the world's total shipping tonnage, carry more than three-fifths of all the oil that is used. Affiliates of Jersey Standard own 124 tankers and currently have an additional 148 vessels under charter. Humble Oil & Refining Company, Jersey's principal domestic affiliate, operates nineteen ocean tankers under the United States flag—the largest group of privately owned American-flag vessels—which employ more than 1,000 American seamen and officers. This year the Humble fleet celebrates its fiftieth anniversary. And although pipelines now give severe competition in moving oil from the Gulf Coast to the East Coast, Humble has shown its faith in the future of oil at sea by ordering two new supertankers, each of 66,700 deadweight tons (their cargo capacity, plus the weight of their own fuel, fresh water, and supplies).

Before World War II, 12,000 tons was still considered a good-sized ocean tanker. Then, during the war, the United States Maritime Commission ordered 525 tankers, called T2's, of some 16,000 deadweight tons. Many of these were purchased after the war by oil companies, including Jersey, to replace tonnage they had lost to enemy action. Jersey's first "supertankers" (27,000-ton vessels) were delivered in 1949-50. Today the *Esso Deutschland*, owned by Jersey's German affiliate, is 91,600 tons. The *Esso London*, owned by Esso Petroleum Company, Limited, is slightly more than 90,000. She is 861 feet long, exceeded in length only by the largest passenger liners.

Ships of this size cannot squeeze through the Panama or Suez canals when fully loaded. But their capacity is such that they can still deliver a cargo from the Persian Gulf to Western Europe by way of the Cape of Good Hope more economically than smaller ships could have moved the same volume through Suez.

With continuing discoveries of crude oil on distant continents, the trend to bigger and bigger ships continues. The capacity of docks and terminals, harbors and canals, has been steadily enlarged. In recent years, for example, the Suez Canal has been deepened to accommodate ships of a 38-foot draft. Esso Petroleum Company, Limited, has been deepening the channel into Milford Haven, its refinery in Wales, and also the approaches to its Fawley refinery near Southampton.

The two largest ships on order, 152,000-ton tankers for a Japanese firm, could easily be accommodated at Milford Haven now, at the Esso refinery in Norway, or at the great offshore mooring structure of Esso Libya on the African coast. A terminal under construction on the Middle East island of Kharg can handle both these monster ships at once—pumping crude oil into each at the rate of 37,500 barrels an hour. This is an expensive installation—but the bigger the ship, the more valuable her time.

by JACK LONG

Vacationing visitors and the capital's whirring traffic are indicative of the new prosperity of this sun-blessed island

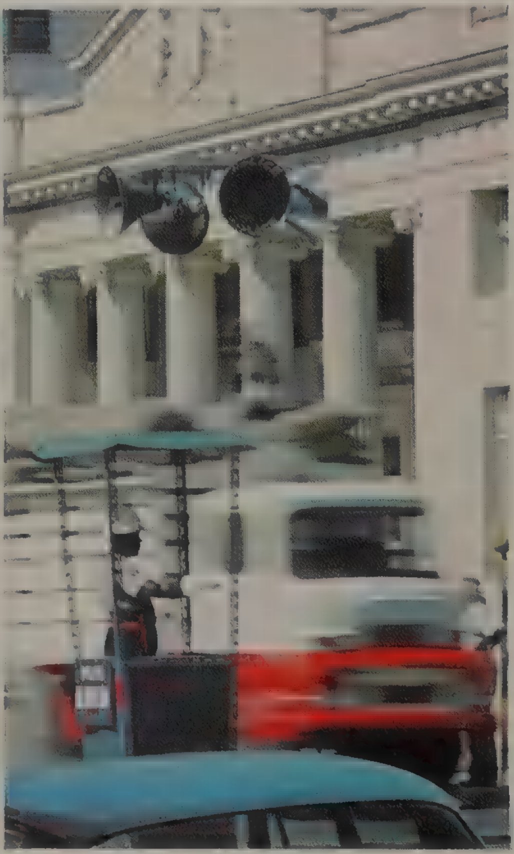
JAMAICA

"Twenty years ago practically all the wealth of this island was in the hands of a few families," a Jamaican businessman remarked recently. "Look out there now."

"Out there" on Kingston's Harbour Street, traffic was heavy. Many new cars sparkled in the sun, some with a large red "L" in their windows—official warning that a learner was at the wheel.

To anyone who had known the country in the past, the change was striking. In only five years the number of motor vehicles in Jamaica has more than doubled, reaching a total of nearly 70,000. The entire economy of this young nation—which became an independent member of the British Commonwealth on August 6, 1962—is moving as briskly as the cars in its capital city.

For years vacation visitors have enjoyed the island's magnificent beaches and balmy climate. Those who took time to explore the country knew it also as a land of forested mountains and rolling pastures; plantations of cane, citrus, coconuts, and bananas; and a vigorous, intelligent, multiracial population — primarily African, but also of European, East Indian, Chinese, and many other origins. Today a new group of foreign visitors are getting acquainted with Jamaica. They are businessmen instead of tourists, and they have discovered that the island is an attractive and fertile place for capital investment. Drawn by the opportunities there and the incentives offered by a friendly, stable government, businessmen from Britain, Canada, Europe, and the United States are helping to transform the country from a pastoral subsistence economy to a modern industrial one.



The foundations for the change were laid while the island was still a British colony. In 1944 Jamaica gained a large measure of internal self-government, with a new constitution and an elected House of Representatives. Economically, it was dependent almost entirely on its agriculture. Then a landowner had a sample of soil analyzed and learned that it was rich in bauxite, the mineral from which aluminum is made. Huge deposits were found and developed by American and Canadian companies, and today bauxite accounts for more than 40 per cent of the island's export earnings. Sugar is the second largest earner of foreign exchange, and tourism has become the third.

With 1.7 million people and an area of 4,411 square miles, Jamaica is a very small country and still relatively poor. Yet overall economic progress has been rapid. Between 1952 and 1962 the gross national product increased by 150 per cent. Per capita income increased by 120 per cent, rising from $174 to $383. In 1960 industry's contribution to national income equaled agriculture's for the first time. There is reason to believe that the present growth rate—a healthy 7.5 per cent each year—will be maintained and that Jamaica will continue to act as a strong stabilizing influence in the area.

The greatest future growth is expected in the industrial sector, because that is the way the island's business and government leaders have planned it. They are well aware that independence and freedom need strong economic underpinnings and that industrialization is the only road to jobs for a growing population.

Much of Jamaica's hope rests with the young people, and education has a high priority in the government's five-year independence plan that began in 1963. The country is young in terms of population as well as nationhood, with 50 per cent of the people under twenty and 40 per cent under fifteen. These figures indicate both a serious problem and an opportunity. Schools as well as jobs must be provided for many thousands of poorly educated and unskilled youngsters. More than 17 per cent of the government budget now goes into education.

Jamaica is competing aggressively in the world market for private investment money to provide the necessary base to expand the economy, increase exports, and bring in taxes for public services. The government is convinced that its function is not to intrude in the area of private enterprise but to act as a catalyst in stimulating business activity. Commenting on

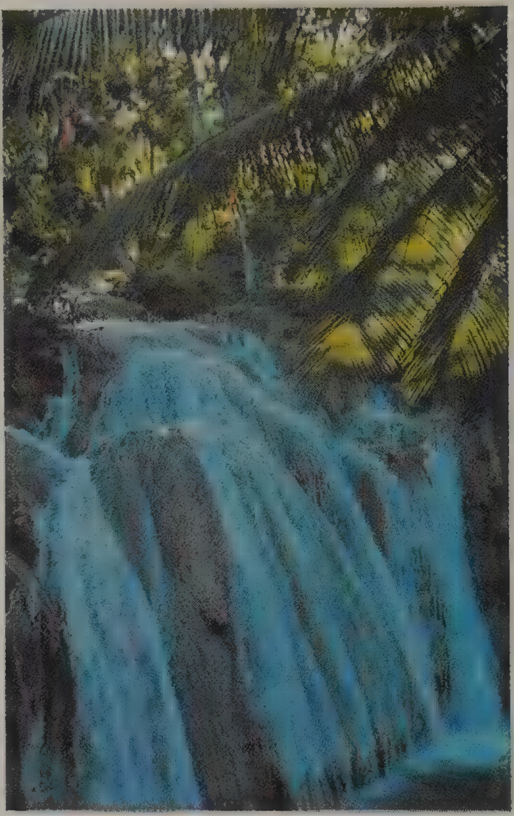
the need for foreign investment, a local leader put it this way: "Once you have decided that your country is going to be part of the free world, the question of whether or not you welcome outside capital is settled."

To facilitate investment in the island, the government established the Jamaica Industrial Development Corporation. Near the magnificent harbor at Kingston, an industrial estate of 300 acres was created to provide sites for new factories. Today forty-five plants there and 3,000 workers turn out Venetian blinds, bags and boxes, brassieres, raincoats, shoes and patio furniture, batteries, phonograph records and baseballs. A small steel mill is being built, a $1.4 million bottling plant was recently opened, and a factory for telecommunications equipment is planned.

This expanding production has called for increasing amounts of energy. Between 1955 and 1963 the annual consumption of petroleum in Jamaica rose from 3,070,000 barrels to 7,145,000 barrels. One of the companies helping to meet this need is Esso Standard Oil S.A. Limited, which has been doing business in the island for more than fifty years. This marketing company now supplies about half of Jamaica's requirements for gasoline, liquid petroleum gas, jet fuel, diesel fuel, kerosene, heavy fuel oil, asphalt, and industrial lubricants.

For the first time, petroleum products now carry a "Made in Jamaica" label. Since March 18, 1964, they have come from the silvery tanks and pastel-painted towers of Esso's Kingston refinery, which stands on a peninsula of filled land at the harbor's edge. The $13 million plant is one of the largest single investments made so far under the country's industrial incentive laws.

Jamaicans and expatriates worked side by side to build the refinery. It was designed by Esso Research and Engineering Company and includes advanced cost-saving features that make this relatively small, 26,500-barrel-a-day plant competitive. Local contractors, manufacturers, and suppliers furnished nearly $3 million worth of concrete, paint, fencing, hardware, lumber, safety equipment, and other goods and services. More than 350 Jamaicans were trained in construction work, many of them learning new skills.



Three facets of life in a dynamic young nation: brisk traffic in Kingston, whose fine harbor is being modernized; a waterfall near the north shore resort center of Ocho Rios: and (bottom) *refinery technicians who have learned new skills needed for industrialization*

When the refinery gates were opened for hiring in the spring of 1963, 600 young Jamaicans were interviewed for jobs as technician trainees. Four hundred and eighteen were given aptitude tests, and sixty-six were hired. This group then began to attend classes in refinery operation under instructors loaned by various Jersey affiliates. The teachers found their pupils quick and eager to learn and reported that grades were higher than for some similar groups in the United States and Canada. A few months after the refinery went on stream, several men had already acquired extra skills and qualified for higher pay through on-the-job training.

The refinery will soon be in the hands of an almost entirely Jamaican staff. At present there are nineteen expatriate supervisors for training purposes. In another year only a few will remain. All of the fifteen Jamaican supervisors are graduate engineers. Several of these young men were working abroad until the refinery offered them an opportunity to come home and join their country's forward march.

To Jamaica the refinery has meant a new industrial payroll, new taxes, and a stimulus to further business expansion. A blending and packing plant for lubricants is already under construction next to the refinery and will be finished by late 1964.

Industrial growth has brought increased activity to Kingston Harbor, where an extensive modernization program is under way. Local and foreign investors are spending $4.5 million to build a new dock area adjacent to the refinery. It will include warehousing and bunkering facilities, 1,800 feet of piers, and a passenger terminal capable of handling the largest ocean liners—which are now obliged to anchor in mid-harbor. Esso is participating in this project and also plans to install $250,000 worth of pipelines and pumping equipment to supply bunker fuel at the terminal. Elsewhere in the harbor, existing wharves are being rebuilt at an eventual cost of $10.5 million.

The company is also contributing to the island's agricultural progress. Some years ago Esso marketers and research men, working with a Jamaican government agronomist, developed a spray oil that successfully controls leaf spot, a fungus that threatened to wipe out the banana

Sugarcane and cruise ships both help Jamaica's economy. The Esso refinery (center) *is one of many new industries brought to the island by outside investors. Groups such as the Kingston pantomime players* (bottom) *represent a growing pride in Jamaican culture and traditions*

as a commercial crop. It is used today wherever bananas are grown. The company also supplies a substantial part of the island's chemical fertilizer.

Jamaica is a place of contrasts as it goes through the present transitional period in its development and struggles to achieve self-sustaining economic growth. The population of Kingston rapidly approaches 400,000, largely because of the movement of people from the countryside, and decent housing is in short supply. At the same time there is a new middle class of Jamaicans, more prosperous than ever before, who own new homes and are politically alert and active. A well-established two-party system functions effectively.

In the country, the daub-and-wattle, thatch-roofed huts of the past are being replaced by tidy prefabricated houses. A great many farms are family-run plots too small for profitable cultivation, but the owners are tenacious believers in private property and provide another element of political stability. Growers' associations are making strenuous efforts to improve farming and marketing methods, and the government is helping with training and easy credit. Fishermen still use dugout canoes, but today 2,000 of them are outboard-powered.

Life in the mountains still has its pungent local color, its own lilting language spiced with Ashanti words from Africa, its folktales, songs, and dances. The peasant markets to which women bring produce on their heads lack the efficiency and cleanliness of the big new supermarkets of Kingston, but they are marvelous centers of social life. Much that is typically Jamaican is being preserved now that a sense of national pride is growing, and sophisticated artists, sculptors, and musicians are beginning to produce work with a distinctly Jamaican accent.

Down in the capital, as it spreads toward the surrounding mountains, modern houses and air-conditioned office buildings spring up beside the quaint iron fences and pink cement walls of another era. At night the city rings its harbor with a glittering carpet of lights, and above them the flare of the new Esso refinery is sometimes visible for miles. The safety flare is a landmark for motorists. It has also been called a beacon of progress.

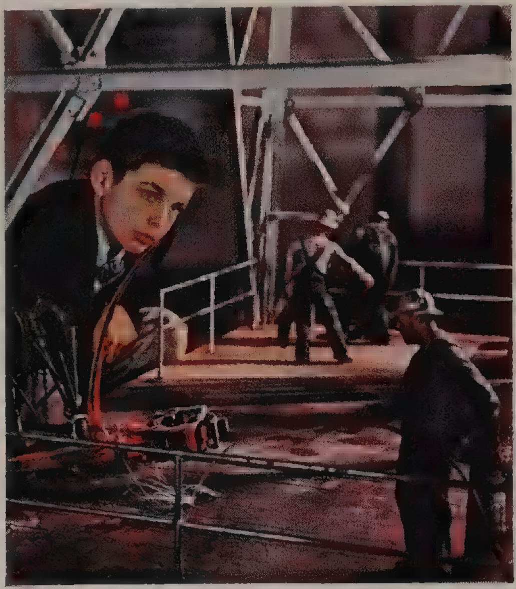
MANAGUA'S 600 DAYS

Oil companies often find it desirable to build refineries close to their markets. Where the markets are small, the design engineers face a serious challenge. Simply reducing an average 70,000-barrel-a-day plant to half size does not cut its construction cost in half. In general, the smaller the refinery, the higher has been its cost per barrel of capacity.

Esso Research and Engineering Company, in cooperation with Esso Standard Oil S.A. Limited ("Essosa"), attacked this problem several years ago and came up with a radically new blueprint for "small economy size" refineries. Innovations that hoard heat, simplify processing, and reduce tankage and piping have cut investment and operating costs below those of a conventional refinery of the same capacity.

Jersey's smallest refinery—and certainly one of the smallest of its kind in the world—was put in operation last year by Essosa in Managua, Nicaragua. The plant (shown below) produces 5,500 barrels of products—gasoline, distillate, and fuel oil—a day. It occupies less than twenty acres of ground.

A special source of pride to the staff is its remarkable safety record: in the 600 days since the first employee was hired, there have been no lost-time accidents. The Inter-American Safety Council awarded the Managua refinery the Outstanding Merit Plaque in recognition of completion of the initial year of accident-free operation.



WHERE TO LEARN ABOUT OIL

In 1955 the renowned American Museum of Natural History, in New York City, opened a Hall of Oil Geology designed and assembled by the museum staff and Jersey Standard. In the intervening years the hall has been visited by some 15 million people. With charts, models, actual drilling equipment, and beautiful dioramas of the earth's substructure, the exhibit illustrated and explained the formation of oil, exploration and production methods, and the historic uses of petroleum. Most popular feature was a 25-foot scale model of a drilling rig manned by miniature figures. Nine years ago the displays were considered temporary, but they are now becoming part of three permanent oil exhibits in different parts of the country. The five main dioramas will remain at the American Museum. The major part of the display will go to the Houston Museum of Natural History. The model derrick (shown above) has been transported to Washington, D.C., where it can be seen as part of the Smithsonian Institution's extensive oil exhibition.

KEEPING WATER IN ITS PLACE

On Maui, second largest of the Hawaiian Islands, the 8.5-million-gallon Olinda Reservoir was built in 1918 to supply irrigation and drinking water. Not long ago its eroded concrete walls and bottom were leaking 400,000 gallons a day. The local water board decided to solve the problem in a modern way. They had the entire structure lined with 68,000 square feet of butyl rubber sheeting, and there has since been no measurable seepage.

Over on the neighboring island of Hawaii, actor James Stewart had a different problem: parts of his 1,700-acre ranch had no water at all. This time a new 52,000-square-foot catchment area and a 4-million-gallon reservoir were dug out of a slope of massive Mauna Loa Mountain. Rolls of butyl sheeting were unrolled into the basin and sealed together. Once arid land is now being turned into pasture and planted to macadamia nuts.

Butyl rubber supplied by the Enjay Chemical Company is being used in increasing quantities to line reservoirs, irrigation ditches, and ponds, especially in the western United States. In the East, where things are often done on a smaller scale, 1,200 square feet of the oil-based synthetic were used recently to line a reflecting pool (below) in the garden of New York's Museum of Modern Art.

PANORAMA

HAPPY MOTORING BY THE HOUR

Sometimes the best way to get where you're going is to rent the type of vehicle that suits the need of the moment—whether it's a bicycle, a truck, or a 1936 Cadillac, with leather fenders and a chauffeur, for an evening in New York.

All kinds of motor transport are being rented or leased today by all kinds of people. Of more than two million cars in the United States used primarily for business, more than one in four is leased. About one in twenty-five of the country's trucks is leased. In the industry, rental usually refers to use for periods from an hour up to a few weeks; leasing involves a contract for several months or by the year. Renting and leasing services are growing at a rate of 15 to 20 per cent annually.

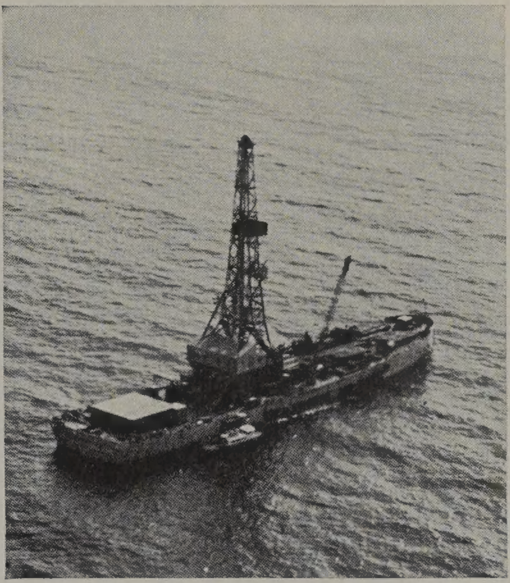
There are several reasons why people rent or lease motor vehicles. Major renters are men on business trips. For commuters, shoppers, and families wanting temporary use of a second car, short-term renting provides transportation that is paid for only when it is needed. A company using a fleet of vehicles can lease them for a fixed fee instead of tying up capital. With a "full-service" lease, it is freed of insurance, licensing, permits, and paper work. Maintenance facilities and spare-parts inventories are eliminated. If a car or truck breaks down, the leasing firm replaces it immediately.

Individuals are also leasing cars in increasing numbers. Like the fleet lessee, the individual driver is relieved of responsibility for licensing, insuring, and maintaining his car and can have a brand-new model every year. People in the business predict that their biggest future growth will be in the writing of automobile leases for individuals.

One indication that the renting and leasing service has come of age is the upsurge of discounters in the field. Established firms feel that they can meet this competition by stressing reliability, convenient credit cards, and national organizations that build customer loyalty.

Humble Oil & Refining Company recently became the first major oil company to enter the car-rental business in the United States. Working with approximately sixty Esso dealers in five eastern cities (the station shown below is near Camden, New Jersey), Humble leases cars to these independent businessmen, who in turn rent them to cash customers and credit card holders. The service is popular with, among others, housewives going shopping while someone else has the family car, car-pool members who drive once a week, car owners whose vehicles are being repaired, and parents with a college student home on vacation. The program began last spring and continues on a test basis in selected areas. It promises to bring the convenience of car renting as close to home as the neighborhood "Happy Motoring" sign.

ESSO RENT-A-CAR
ASK ABOUT OUR SPECIAL RATES
WE INSTALL MUFFLERS AND PIPES
RENT THIS CAR
PUT A TIGER IN YOUR TANK!
Esso RENT-A-CAR HERE!



DOWN DOWN DOWN

The search for offshore oil leads into deeper and deeper water. Latest example of this is a drilling ship, now anchored off the California coast, which is drilling a wildcat well in 600 feet of water, over 200 feet deeper than the previous record. The vessel—called WODECO III after its designer-owner, Western Offshore Drilling and Exploration Company—is now under contract to Humble Oil & Refining Company and California Standard, which are operating it jointly.

The creation of WODECO III was a marvel of shipyard surgery. Her midsection was cut from a World War II Navy tanker and joined to new, blunter bow and stern sections. To lower her center of gravity, the ship's entire deck was cut free of her hull, from stem to stern. Then a new deck section was added, complete with drilling platform and helicopter landing pad.

WODECO III can sustain her drilling crews for at least thirty days without supply deliveries from shore. Her drilling equipment and supplies can last through the completion of any well.

According to her designers, the ship can roll thirty degrees to port or starboard without capsizing. Her drilling mast can withstand winds of 100 miles an hour or more. In short, she is designed to sail anywhere in the world's oceans and to continue the search for oil, regardless of weather.

"ESSO THEATRE U.S.A."

Except for the small knot of actors and their director, the cavernous rehearsal hall was empty. Outside, on New York's Second Avenue, the fall sun had passed its midday point, leaving the street in shadow. Inside, it was nineteenth-century London.

Leaning in toward the action, the director listened closely as the young actors spoke their lines from George Bernard Shaw's comedy, *How He Lied to Her Husband.* The hall crackled with the vitality of Shavian dialogue.

But this was no ordinary play in rehearsal. In a few days the young players would give a single performance to an unseen audience. Then another hour of a significant new Esso television series would be ready for broadcast.

Scenes like these will go on through the fall, until thirteen one-hour programs have been completed. Then, sometime early in 1965, viewers will be welcomed through television to "Esso Theatre U.S.A.," a series in which leading repertory theatre groups from cities throughout the United States will interpret the works of modern American and European playwrights. Each program will be telecast in prime viewing time and will feature a different community theatre and drama group. The shows will be videotape-recorded in the home theatres of the repertory groups wherever time and technical facilities permit.

The resurgence of repertory theatre in the United States has been widely reported in the press and acclaimed as a sort of renaissance in American cultural life. *Time* Magazine commented: "Repertory theatre, never much of an institution in the United States, has grown in recent years in every region of the country, and the movement is overdue. Rep companies are the tap source and five-foot shelf of theatre in other nations; they give actors unmatchable experience, they try new forms, and they keep the so-called classics dusted.

"A Rembrandt can be seen and Melville can be read," *Time* continued, "but Marlowe or Molière are pale shadows in paperback. They must be performed on the stage to come alive."

"Esso Theatre U.S.A." will bring the excitement and vigor of repertory production to television. Viewers will see plays never before performed on television or rarely played on Broadway.

The producer of "Esso Theatre U.S.A." is David Susskind of Talent Associates-Paramount, Ltd. Mr. Susskind's affiliation with Esso productions dates back to 1960 and the *Play of the Week* series. His group also produced *Festival of Performing Arts* during 1962 and 1963.

Among the repertory theatre groups which may participate in the series are: Cincinnati Playhouse in the Park; San Francisco Actors Workshop; Seattle Repertory Theatre; Milwaukee Repertory Theatre; Charles Playhouse of Boston; Arena Stage of Washington, D.C.; Association of Producing Artists of Ann Arbor, Michigan; Pittsburgh Playhouse; Louisville Actors Theatre; Hartford Stage Company; McCarter Theatre of Princeton University; Baltimore Center Stage.

Included in the list of plays being considered for production are: *Calvary,* by William Butler Yeats; *Act Without Words,* by Samuel Beckett; *Creditors,* by August Strindberg; *The Bedtime Story,* by Sean O'Casey; *A Wedding,* by Anton Chekhov; *St. Patrick's Day,* by Richard Brinsley Sheridan; *Hello Out There* and *Once Around the Block,* by William Saroyan; *The Beast in the Jungle,* adapted from the short story by Henry James; and *The Rise and Fall of the Restaurant Business,* by Arthur Kopit.

The series will be telecast in major eastern cities.

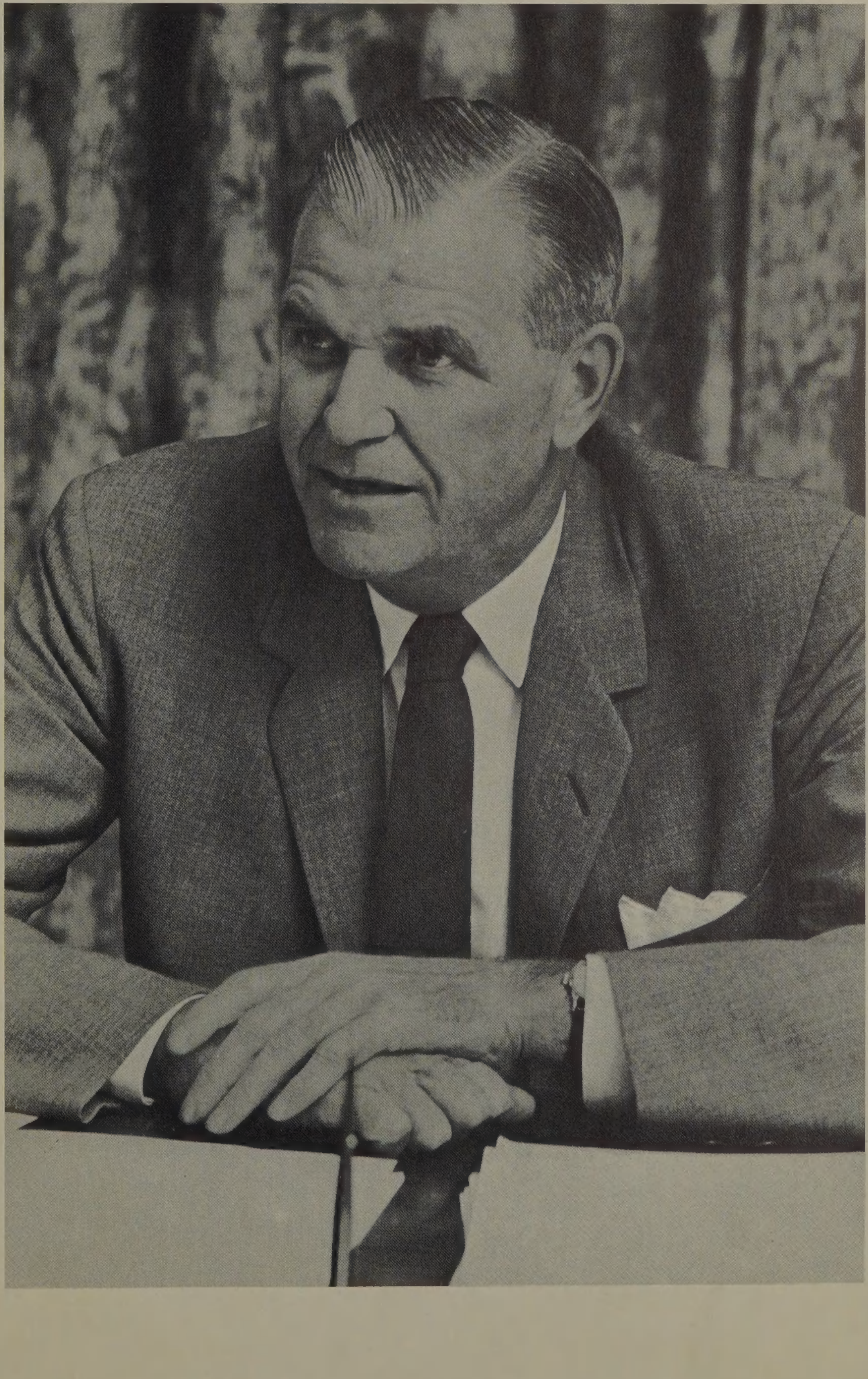
J.K.JAMIESON ELECTED TO JERSEY BOARD

J. K. Jamieson has been elected to the board of directors of Standard Oil Company (New Jersey). He was also elected an executive vice president and a member of the executive committee. To accept the post, Mr. Jamieson resigned as president of the Humble Oil & Refining Company, Jersey Standard's major affiliate in the United States. At the same time Humble, in Houston, Texas, announced the election of Charles F. Jones, an executive vice president of Humble, to succeed Mr. Jamieson as president. The election of Mr. Jamieson increased the Jersey board to sixteen members and the number of executive vice presidents to six.

Mr. Jamieson, now a United States citizen, was born in Medicine Hat, Alberta, Canada, and attended the University of Alberta. He was graduated from Massachusetts Institute of Technology with a bachelor of science degree in civil engineering and business administration. After graduation, he worked with two Canadian oil companies. During World War II, he served in the oil controller's department of the Canadian government.

Mr. Jamieson joined Imperial Oil Limited, the Canadian affiliate of Jersey Standard, in 1948 as associate manager of the coordination and economics department. The following year he was made head of the engineering and development division at Sarnia and in 1950 was appointed assistant general manager of the manufacturing department.

He was elected a director of Imperial Oil in 1952 and, one year later, a vice president. In 1959 Mr. Jamieson was elected president and director of International Petroleum Company, Limited, a Jersey Standard affiliate with operations in the Caribbean, Central America, and parts of South America. He served with International until June, 1961, when he was elected a vice president and member of the board of Humble. He was elected president of Humble in 1963. Mr. Jamieson, whose present home is in Manhattan, is married to the former Ethel May Burns. They have two children.



Richard C. Steedman, the photographer hard at work above, took the picture of Jamaica's coastline on the cover, as well as the photographs on pages 18-21 of the young island republic. Born in Hartford, Connecticut, Dick learned photography in the Air Force and at the Rochester Institute of Technology. He now lives in Kingston and is chief photographer of the Jamaica Tourist Board.

The article on Jamaica's promising economic bootstrap effort was written by Jack Long, of THE LAMP staff, who has traveled through much of the Caribbean.

"Gathering of the Ghost Ships" (page 12) was written by a man who has devoted his life to sailing ships and the sea. Captain Alan Villiers, an Australian who now lives in Oxford, England, first rounded Cape Horn in a sailing bark as a fifteen-year-old cadet. Many voyages later he commanded the full-rigged *Joseph Conrad* on a 60,000-mile circumnavigation of the globe. Captain Villiers has more than three decades of sailing and eighteen books to his credit.

"The Story of Operation Sail" is told by Melvin Conant, of Jersey's government relations department, who helped to organize the international gathering of training ships. A native New Yorker, Mr. Conant has long been a student of marine history.

Ernest Melanson, who photographed the square-rigged ships (pages 12-16), took his first pictures from reconnaissance planes in the Pacific during World War II. He followed "Operation Sail" for five days as the ships moved into New York Harbor. Foggy weather supplied the ghostlike mood appropriate to these reminders of seafaring history.

Arthur Seller, whose camera recorded North Sea oil exploration (pages 2-5) and "Motorworld in Miniature" (page 6), spent fifteen years as an art director in New York advertising agencies before turning to freelance photography. Recent magazine assignments have taken him to South America, Europe, and England.

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L. F. MIHLON, *Editor*

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